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ABSTRACT

Cornell University's College of Human Ecology offered an extramural graduate level course to forty randomly selected home economics teachers throughout New York State. Course objectives dealt with improvement of planning and teaching competencies. Participants were sent self instructional modules and audio/video tapes. Feedback and evaluation were based on tapes and assignments. The results demonstrate that this instructional model is a feasible alternative for providing inservice education over a wide geographical area. (Author/STS)

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AUTHOR ABSTRACT
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Author:

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Abstract (up to 200 words):

During the 1975-76 academic year, Cornell University's College of Human Ecology offered a unique extramural graduate course to forty randomly selected home economics teachers throughout New York State. A major purpose of the project was to evaluate an atypical model for providing inservice course work. Objectives dealt with improvement of specified planning and classroom teaching competencies. The course was implemented by sending participants self-instructional modules accompanied by audio/video tapes. Participants used tapes for recording actual classroom use of competencies and for self-assessment. Feedback and evaluation was based on tapes and other assignments. No class meetings were held. If each participant had made only one round trip to campus, the total group would have traveled over 12,000 miles. Participants' and their administrators' evaluations of the course were very positive. There was significant increase in use of praise and encouragement, and accepting and clarifying pupil feelings. There was decrease in use of lecture and directions, commands and orders. Teacher elicited student talk increased. The results demonstrate the model developed for the project is a feasible and productive alternative for providing in-service course work over a wide geographic area.

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A State Wide On-Site Inservice Course Using Competency Based Individualized Instruction With Two-Way Video/Audio Taping

A Research Paper Presented at
1976 AVA National Convention
Dec. 4, 1976

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by

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This presentation could be titled "Teachers Improve Competencies Because of a Course that Never Met."

My paper is on a competency-based individualized instruction course that we provided to teachers throughout the State of New York. For this presentation I will give a brief overview of the model that was developed for the project, results of course evaluations by the teachers and their administrators, and information concerning measured changes in the teachers' verbal classroom teaching.

During the 1975-76 academic year, the Department of Community Service Education of Cornell University's College of Human Ecology offered a rather unique extramural graduate course to more than forty home economics teachers throughout the State of New York. The State Department of Education's Home Economics and Grants Administration Bureaus supported the project by payment of participants' tuition.

The theoretical framework and model for the format, content and implementation of the course was formulated on the basis of theory and research from several areas. These included individualized instruction, self-evaluation, student ratings, video/audio taping and teaching skills. Some of the basic assumptions for the model include:

- A major means of improving teaching is through self-directed change.
- Self-directed change can be facilitated by individualized instruction that provides for self-evaluation of competencies.
- Information and feedback about teaching behaviors must be supplied in meaningful and objective ways.
- A supporting encouraging climate must be established for persistance in individualized instruction and for self-evaluation.

- These and other basic assumptions are viewed as inter-related and inter-dependent, and form the theoretical framework for the model.

The field-force analysis provided in figure one gives an idea of how research findings, assumptions, plus other factors were used for maximizing the course effectiveness. On the bottom left hand side of the figure are some examples of how we attempted to counteract deterring or restraining factors, as anxiety due to evaluation by others, taping and self-evaluation.

A random sample of home economics teachers throughout the State was invited to apply for participation in the course. A requirement for the course was access to video and audio taping equipment. Of the applicants accepted, the majority were randomly assigned to the fall or spring semester course. Figure two indicates the diversity of the participants. Teaching of grades seven through twelve was equally represented as were the various home economics subject matter areas. Approximately 29% of the teachers had provisional certificates and 71% were permanently certified. Years of teaching experience ranged from the first to nineteen years with an average of nine years. Schools, communities, and districts represented by participants were varied in size, type, and location. Nineteen New York State counties were represented and if each participant had made only one round trip to Cornell's campus in Ithaca, the total group would have traveled over 12,000 miles. The use of individualized instruction with two-way video and audio taping made it unnecessary for any student to come to campus.

Though participants seemed in most ways to be a representative sample, generalizability of findings is limited due to their needing access to video-taping equipment and possible personality characteristics effecting whether or not an individual applied for the course.

Course content was taught by use of individualized instruction in the form of learning packages or modules. Figure three lists the components of the individualized instruction packages. The self-tests consisted of objective test items on the background information and its application. A variety of learning experiences were suggested for each supporting objective. The post-assessment required actual use of competencies.

Figure four provides a summarized description of the course content and related activities. The course topics included establishing set, interaction analysis, using new state curriculum materials, questioning skills, reinforcement, affective responses, value clarification techniques, and determining teaching self. This last module required teachers to clarify their teaching values and give indicators of how these values could be operationalized and observed in their classroom.

The course was implemented by sending participants modules accompanied by audio and/or video tapes and readings related to module topics. Participants reused the tapes for recording their actual classroom use of the competencies, and used observation and feedback devices for self-assessment of their tapes. The course instructor provided feedback and evaluation to participants by written responses on their self-assessment of tapes, their personal objectives for continued improvement and some other assignments.

The participants' evaluations of the course were very positive. Of 36 course evaluations, 89% felt that the course materials and activities were definitely valuable. Ninety-four per cent rated the majority of module topics as having value for their teaching. Seventy-five per cent strongly agreed and 19% agreed that the course activities were as valuable as any other inservice activities in which the teachers had participated. Responses to open-ended questions found almost every possible aspect of the course

mentioned as the most valuable part of the course for one or more participants. Even in response to an open-ended question asking about the least valuable part of the course, over one-third of these responses were positive. The advantages participants noted for this individualized field-based course format far exceeded what they felt were the disadvantages. A follow-up evaluation sent 4 to 9 months after their completing the course found almost all reporting continued use of various forms of self-evaluation. The follow-up evaluation also found them still very positive about the course format, activities, and content.

Administrators of participants were surveyed for their evaluation of the course, and 80% of the respondents felt it helped the teachers to do objective self-analysis of their teaching and to actually improve their teaching. Seventy-seven per cent felt the same type of course would be of value for teachers of other subject matter areas, and that the course format was a very feasible alternative to the usual college course for teachers.

Even more important than the positive evaluations of the course, significant changes occurred in the taped classroom verbal interaction patterns of the teachers. At the beginning of the course, teachers were immediately requested to audio-tape one or more of their classes as a means of us getting to know them and some of their pupils. Their final audio tape was made for completing the module, My Teaching Self. We did not pro ide them with any criteria or means of evaluating this tape because each individual was to establish their own criteria on the basis of preferred values for teaching.

The verbal interaction of initial and final tapes of participants' classroom teaching was coded using Flanders' Interaction Analysis coding system. The Flanders' system consists of 10 categories of verbal behavior, 7 for teacher talk, 2 for pupil talk, and 1 category for silence or confusion. The 10 categories are considered mutually exclusive while being totally inclusive

of all verbal behaviors of a teacher that occur in a classroom.

Using Scotts Pi, between-rater and within-rater reliability was determined for the two people who coded the tapes. Their coding reliability was consistently in the high 80's and low 90's. Approximately 30 minutes of class time was coded for each teacher. Comparison of initial classroom interaction for fall and spring participants found the groups did not differ significantly and thus the groups were pooled for final analysis. This provided complete pre- and post-data for 29 people.

Figure five presents the pre- and post-means, difference means, t values and probabilities for the four categories of indirect verbal behaviors. The increase in the use of accepting and calrifying pupil feelings was not significant at a .09 level of probability. Since accepting and clarifying student feelings can be a difficult competency to develop and implement in the classroom, this difference is encouraging. The increase in use of praise and encouragement was significant at the .002 level. Their accepting and using ideas of pupils did not change significantly. Due to the slight increase in use of questions, but a definite increase in the variance and length of pupil responses to questions, we are investigating whether or not more of their questions were calling for pupil responses at higher levels of cognition.

In figure six are the results for pre- and post-use of direct teacher verbal behaviors. The teachers' decreased use of lecture was significant at the .01 level of probability. The decrease in giving directions, commands and orders was significant at the .004 level. There was a slight but not significant increase in teachers criticizing

and justifying authority.

Figure seven presents the results for the remaining categories. Of the two categories of pupil talk, responding to the teacher increased significantly. The amount of pre- and post-class time coded as silence and confusion remained approximately the same.

With the Flanders' system, an indirect-direct ratio of teacher talk can be obtained by dividing the total of the 4 indirect categories by the total of the 3 direct categories. An indirect-direct ratio of 1 indicates equivalent use of both indirect and direct verbal behaviors. As shown in figure eight, the teachers' initial indirect-direct ratio was .54, indicating twice as much direct verbal behavior as indirect verbal behavior. The final indirect-direct ratio was .95 indicating almost equivalent use of indirect and direct verbal behaviors. This change was significant at the .02 level of probability.

We are repeating the project and investigating changes in the cognative level of questioning, pupil perceptions of changed teacher behavior, and some personality variables. A final report for the two years of the project will be available late summer, 1977.

Considering the positive evaluations by course participants and their administrators, significant changes in taped segments of the participants' classroom teaching, low dropout rate, plus other evaluative and cost data we have collected, the theoretical framework and delivery system is seen as a feasible and productive alternative for providing course work for in-service teachers over a wide geographic area.

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December 4, 1976

FACTORS THAT COULD

MAXIMIZE → EFFECT OF PROGRAM ← MINIMIZE

RELEVANCE TO ACTUAL TEACHING

FLEXIBILITY IN CHOOSING AND COMPLETING LEARNING ACTIVITIES

TUITION PAID FOR

TIME SAVED IN TRAVELING

FREQUENT MENTIONING OF NAMES, SHARING, AND CREDIT FOR IDEAS

QUICK RESPONSE TO LOGS, ASSIGNMENTS VIA HAND-WRITTEN, PERSONALIZED NOTES

USE OF TELEPHONE FOR MORE IMMEDIATE OR SERIOUS PROBLEMS

PROVIDING GUIDES FOR PLANNING AND CARRYING OUT ASSIGNMENTS

S - U GRADES

ENCOURAGING-SUPPORTING "CLIMATE"

LACK OF PERSONAL CONTACT (INSTRUCTOR - PEERS)

LENGTH OF TIME FOR WRITTEN COMMUNICATIONS

NEED FOR SELF - DIRECTION, PLANNING

ANXIETY DUE TO GRADING, TAPING, SELF-EVALUATION, STUDENT EVALUATION, PEER-EVALUATION

PROBLEMS WITH EQUIPMENT

UNFAMILIARITY WITH INDIVIDUALIZED INSTRUCTION

Figure One: Field Force Analysis to Maximize Course Effectiveness

Figure Two

Characteristics of the Participants

Number of Years of Teaching Experience

	Fall (N = 17)	Spring (N = 25)	Total (N = 42)
1-5 years	24%	36%	31%
6-8 years	35%	12%	21%
9-11 years	18%	12%	14%
12-15 years	12%	28%	21%
16-19 years	12%	12%	12%

Certification Held by Participants

	Fall	Spring	Total
Provisional	18%	36%	29%
Permanent	82%	64%	71%

Number of Home Economics Teachers in School District of Participant

	Fall	Spring	Total
Only one	6%	12%	10%
2-3 teachers	29%	28%	29%
4-6	29%	32%	31%
7-10	24%	8%	14%
11 or more	12%	20%	17%

Figure Three

Components of

Modules or Learning Packages

Overview

Terminal Objective (competency)

Supporting Objectives

Background information and suggested readings

Self-Test

Learning Activities

Post-Assessment

Learning Activities for each supporting objective:

- Additional readings
- Observations
- Use of rating sheets
- Examples in writing, on tape
- Planning sheets

Post-Assessment typically including:

- Planned use of the competency in actual teaching
- Taping of the teaching
- Pupil ratings
- Self-critiquing of tape
- Writing of personal objectives

Figure Four: Summarized Description of Course

Mailing #; Date	Topic(s) of Instructional Set	Mat'ls Sent			Required Assignments						Project Personnel Evaluation/Feedback			
		Audio/Video Tape	Learning Package	Readings	Planning Sheet	Pupil Rating	Audio Taping Video Taping	Self-rating	Personal Obj.	Other	Log	Rating of Tape(s)	Evaluation of Their Rating	Other
#1 Sept. 27	Welcome, overview of course requirements, taping schedule, registration materials	A			✓	✓	A	✓				✓	A ✓	
#2 Oct. 1	Establishing Set	V	✓	✓	✓	✓	V	✓		Establishing Set Ideas to share	✓	✓	V ✓	
#3 Oct. 15	Using State Curriculum Materials	A	✓	✓	✓			✓	✓	Needs Analysis & Lesson Plans	✓			Needs Analysis and Lesson Plan
#4 Oct. 29	Interaction Analysis: Coding Verbal Behavior and Student Perceptions	A and V	✓	✓	✓	✓	A	✓			✓	✓	A ✓	Survey of Pupil Ratings Coding of tape
#5 Nov. 12	Questioning Post-Test	A	✓	✓	✓	✓	V	✓	✓	Post-test	✓	✓	V ✓	Establishing Set Ideas Post-Test
#6 Dec. 3	Reinforcement Hearing Feelings	A and V	✓ 2 ✓	✓ ✓	✓	✓	V	✓		Reinforcement Analysis	✓	✓	V ✓	Individual Reinforcement Analysis
#7 Jan. 1	Your Teaching Self	A	✓	✓	✓	✓	A	✓	✓		✓	✓	A ✓	Course Evaluation

Figure Five

Comparison of Initial and Final Taped Classroom Interaction

for

Indirect Teacher Verbal Behaviors

Category		Pre	Post	Difference Mean	t Value	P_*
1. Accepts Feelings	$\bar{X}$	.13	.39	.26	1.77	.09
	sd	.23	.74			
2. Praise or Encourage	$\bar{X}$	2.39	4.73	2.34	3.44	.002
	sd	2.48	3.31			
3. Accepts or Uses Ideas of Pupils	$\bar{X}$	7.08	8.09	1.01	.70	.49
	sd	4.31	4.99			
4. Asks Questions	$\bar{X}$	11.89	13.34	1.44	.96	.34
	sd	6.22	6.85			

* 28 d.f.

Figure Six

Comparison of Initial and Final Taped Classroom Interaction

for

Direct Teacher Verbal Behaviors

Category		Pre	Post	Difference Mean	t Value	P_*
5. Lecture, giving information	$\bar{X}$	49.02	36.07	-12.95	2.87	.01
	sd	19.90	17.05			
6. Direction, commands or orders	$\bar{X}$	5.40	2.08	-3.32	3.18	.004
7. Criticizing or justifying authority	$\bar{X}$	.05	.24	.19	1.28	.21
	sd	.17	.75			

* 28 d.f.

Figure Seven

Comparison of Initial and Final Taped Classroom Interaction

for

Other Categories

Category		Pre	Post	Difference Mean	t Value	P_*
8. Pupil-Talk responding to Teacher	$\bar{X}$	13.76	21.28	7.52	2.28	.03
	sd	12.24	14.17			
9. Pupil-Talk, pupil initiated	$\bar{X}$	7.23	10.65	3.42	1.06	.29
	sd	10.48	13.66			
10. Silence or Confusion	$\bar{X}$	3.07	3.11	.09	.12	.91
	sd	3.83	3.03			

*, 28 d.f.

Figure Eight

Comparison of Initial and Final Indirect/Direct Ratios

Indirect/Direct Ratio =

Total use of indirect categories	1	Accepting, clarifying feelings
	+	
	2	Praise, encouragement
	+	
	3	Using Ideas of Pupils
	+	
	4	Questions

Divided by ÷

Total use of direct categories	5	Lecture
	+	
	6	Directions, commands, orders
	+	
	7	Criticizing, justifying authority

		Pre	Post	Difference Mean	t Value	P*
Indirect/Direct ratio	$\bar{X}$	.54	.95	.42	2.43	.2
	sd	.43	.82			

* 28 d.f.